

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

It is not believed that the objections and 35 U.S.C. §112, second paragraph, rejections apply to the presently pending claims.

Claims 14 to 22 were rejected for allegedly being anticipated by Kagawa, Greim et al., or Azema et al. Applicants respectfully traverse.

Kagawa describes a sintered silicon carbide body utilized as a sealing ring. At a porosity of 4 to 13 percent by volume, the pores have a mean diameter, "average pore diameter" of 10 :m to 40 :m (Abstract, column 3, lines 7 and 44 and claims 1, 5, and 6).

Greim introduces a slide material of silicon carbide having a porosity of up to 10 percent by volume, whose mean pore diameter "mean pore size" is more than 40 :m (column 3, line 23).

Azema discloses compositions having pores having an "average diameter" greater than 50 μ m up to 200 μ m are claimed (claims 1 and 17, 18 and 19). Because of this average pore diameter (column 2, lines 26 to 41), pores also occur in the material whose diameter is far below that of the claimed range, namely 40 μ m (Abstract and column 2, lines 25 and 33).

In contrast, the pores of the sintered silicon carbide bodies according to the presently claims invention have a defined diameter, a nominal diameter. Mean diameter and nominal diameter are not the same.

The mean diameter expresses a value determined from a broad spectrum of diameters on the basis of its frequency, its percentage of the diameters. For this reason, it is entirely possible for the citations to include pores with diameters which are outside the specified limits of the mean diameter range, as is known from Azema. This leads subsequently to problems such as are described by Kagawa at in column 3, lines 48 to 56, pores above the range of the mean diameter

lead to leakage and to the destruction of the sliding and sealing face against which the sealing ring moves. Pores that are too small only weaken the material, however, they cannot form a reservoir for lubricants.

The nominal diameter, in contrast, is the actual diameter, the "nominal diameter". For this reason, all of the diameters of the pores of the invented sintered silicon carbide bodies are within the stated range.

Compared to cited references, with the presently claimed invention it is possible to produce sintered silicon bodies with pores having a defined diameter, a nominal diameter, within a given range. For this reason, when adding the porosization means the ceramic shrinkage of 16.7% during the sintering is taken into account and the diameter of the porosization means to be added for the generation of pores having a specified nominal diameter is correspondingly taken into consideration.

The manner by which the pores attain a nominal diameter within a given range, is described in the specification at page 3, lines 1 to 13.

The advantage of the sintered bodies according to the presently claimed invention resides in that, due to the precisely defined range, within which lie the actual diameters of the pores, the properties of the material with respect to its strength and wear behavior can be predetermined and that the sintered bodies of the same composition also have the same properties. The precisely defined size of the particles of the porosization means according to the original claim 9 makes it possible that the pores have the claimed nominal diameter and the material of the sintered bodies is reproducible.

Problems of density and wear as well as lacking lubricant reserve, which occur due to pores which are too large or too small, such as are described in Kagawa, cannot occur. In addition, no spread of the pore diameters occurs, as is known from Azema.

As explained herewith, the claimed subject matter differs in an essential characteristic: if the diameters of the pores in the silicon carbide bodies of the cited references were comparable to the diameters of the pores in the silicon carbide bodies according to the invention, they would need to be designated "nominal diameters". Since this is not the case, the subject matter of the presently claimed invention is believed to be novel compared to the cited references.

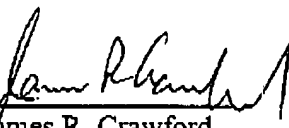
Even knowing the material compositions, a person of skill in the art does not find any direction regarding the way in which he can obtain pores in a given range of nominal diameters. In each of the three citations only ranges of mean diameters are stated. Drawing conclusions to nominal diameters is therefore not possible. Thus a person skilled in the art is forced to take inventive steps to arrive at the presently claimed invention.

In view of the foregoing, allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0624, under Order No. NY-DNAG-331-US.

Respectfully submitted

FULBRIGHT & JAWORSKI L.L.P.

By 
James R. Crawford
Reg. No. 39,155

666 Fifth Avenue
New York, New York 10103
(212) 318-3000